DEPARTMENT OF ENERGY

FINDING OF NO SIGNIFICANT IMPACT

SURFACE WATER INTERIM MEASURES/

INTERIM REMEDIAL ACTION PLAN

FOR THE

903 PAD, MOUND, AND EAST TRENCHES AREAS

(OPERABLE UNIT NO. 2)

ROCKY FLATS PLANT

GOLDEN, COLORADO

AGENCY: DEPARTMENT OF ENERGY

ACTION: FINDING OF NO SIGNIFICANT IMPACT

SUMMARY: The Department of Energy (DOE) has prepared an environmental assessment (EA) of the proposed action to construct and operate a surface water collection and treatment system at Operable Unit No. 2 (OU 2) as part of an Interim Measures/Interim Remedial Action (IM/IRA) at the Rocky Flats Plant (RFP) site. OU 2 surface water has been found to contain organic, radionuclide and metal contaminants. The IM/IRA plan proposes a system to divert and collect contaminated surface water from identified OU2 seeps and drainages. The collected water would be transported by truck and/or pipeline to a surface water treatment facility, processed and released to the South Walnut Creek drainage. Treatment technologies evaluated in the IM/IRA Plan include granular media filtration with polymer addition and chemical treatment/cross-flow membrane filtration for removal of suspended solids; ion exchange and chemical treatment/cross-flow membrane filtration for removal of radionuclides and metals; and granular activated carbon (GAC), ultraviolet (UV) peroxide oxidation, and air stripping with liquid and vapor-phase GAC adsorption for removal of volatile organic compounds (VOCs). Chemical precipitation cross-flow membrane filtration together with a GAC adsorption system, is selected as the preferred alternative. Laboratory and field treatability studies are being implemented in order to verify performance of the selected technology.

The proposed Surface Water IM/IRA is intended to provide interim clean-up of contaminated OU 2 surface water and to have this interim action compatible with the long-range plans to clean up the RFP site. The EA, presented in Sections 7 and 8 of the proposed Surface Water IM/IRA Plan demonstrates that the risks associated with the proposed collection and treatment of contaminated surface water are low. DOE, however, will continue to evaluate options to utilize alternative technologies to improve operations and/or to reduce costs.

Based on the analyses in the EA, DOE believes that the proposed action is not a major federal action significantly affecting the quality of the human environment, within the meaning of the National Environmental Policy Act (NEPA) of 1969. Therefore, DOE issues this finding of no significant impact (FONSI).

ADDRESSES AND FURTHER INFORMATION: Persons requesting additional information regarding the proposed Surface Water IM/IRA project should contact:

Beth Brainard
Public Affairs Officer
U.S. Department of Energy
Rocky Flats Plant
P.O. Box 928
Golden, Colorado 80402-0928
(303) 966-5993

For general information on the NEPA process for the proposed Surface Water IM/IRA, please contact:

Carol M. Borgstrom, Director
Office of NEPA Project Assistance
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
(202) 586-4600

SUPPLEMENTARY INFORMATION

BACKGROUND: The RFP is a part of the National Nuclear Weapons Research, Development, and Production complex administered by DOE.

In March 1987, a Phase I Remedial Investigation (RI) under the ER Program began at OU 2. OU 2 is defined in the draft Federal Facility Agreement and Consent Order (FFACO) (know as the "Inter-Agency Agreement") and is comprised of several Individual Hazardous Substance Sites (IHSS) that were formerly know in aggregate as the 903 Pad, Mound, and East Trenches Areas. The investigation consisted of the preparation of detailed topographic maps, radiometric and organic vapor screening surveys, surface geophysical surveys, a soil gas survey, a boring and well completion program, soil sampling and surface and ground-water sampling. Phase I field activities were completed at OU 2 during 1987, and a draft RI report was submitted to the Environmental Protection Agency (EPA) and the Colorado Department of Health (CDH) on December 1, 1987. Phase I data did not allow adequate definition of the nature and extent of contamination for the purpose of conducting a feasibility study of remedial alternatives pertaining to contaminated media. A draft Phase II Sampling and Analysis Plan that presents the details and rationale for further field work to achieve this objective was submitted to the regulatory agencies in June 1988. This draft sampling and analysis plan was subsequently revised and submitted as a final Phase II RCRA Facility Investigation/Remedial Investigation Feasibility Study (RFI/RIFS) sampling plan in April 1990. The plan was approved by EPA in May 1990.

Phase I data and more recently collected data presented in the final Phase II RFI/RIFS plan indicate contamination of surface water at OU 2 by volatile organic compounds (VOCs), inorganics and radionuclides. In February and March 1990, representatives from DOE, EPA, and CDH met to discuss surface water interim remedial actions at the RFP site. The result of these meetings was a series of general agreements, with the concurrence of all parties, to implement an IM/IRA for the cleanup of contaminated OU 2 surface water. Subsequent meetings were held to agree on schedules for this activity. The proposed action would allow for the collection and treatment of contaminated surface waters potentially impacted by previous on-site storage

practices, and permit the discharge of treated water meeting state and federal standards. Specific point source locations for the collection of surface water and design flow rates are proposed for the interim action.

There is no immediate threat to public health or the environment posed by this contamination because the affected surface water is contained within the plant boundary by existing retention ponds, and the water is treated to meet the Plant's National Pollutant Discharge Elimination System (NPDES) permit prior to water discharge. However, there is a potential imminent threat and DOE is implementing this surface water interim remedial action at the request of EPA and CDH. Another factor is the length of time it will take to complete the investigations and engineering studies necessary to determine the final remedy for OU 2.

This interim remedial action will be conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (DOE Order 5400.4), as amended by the Superfund Amendments and Reauthorization Act (SARA) (DOE Order 5480.4) of 1986, and the National Environmental Policy Act (NEPA) of 1969 (DOE Order 5440.1C).

Where DOE remedial actions under CERCLA trigger the procedures set forth in NEPA, it is the policy of DOE to integrate the procedural and documentation requirements of CERCLA and NEPA, wherever practical. The primary instrument for this integration will be the RI/FS process. This process will be supplemented, as needed, to meet the procedural and documentational requirements of NEPA. In addition, the public review processes of CERCLA and NEPA will be combined for RI/FS-NEPA documents, where appropriate. A key element of the integrated process is making a determination on the level of NEPA documentation that is required for a remedial action project prior to entering the RI/FS scoping process or as soon thereafter as is possible so that appropriate RI/FS-NEPA planning is achieved early in the process. DOE (EH-1) has determined that the level of detail contained in the IM/IRA is sufficient to satisfy the EA level of NEPA documentation.

EH-1 will approve RI/FS-Environmental Assessment (RI/FS-EA) documents, to be prepared no later than the conclusion of the feasibility study initial screening step. The analysis of the environmental consequences of

the remedial action alternatives under consideration is necessary by that rime to determine if an RI/FS-EIS will be required. EH-1 will continue to issue Findings of No Significant Impact.

PROPOSED ACTION: The proposed action is to install and operate a surface water collection system for identified contaminated seeps (or immediately downstream at confluence points) and at an in-stream location on South Walnut Creek, upstream from the existing retention ponds. The collected water would be transported by truck and/or pipeline to a wastewater treatment facility, processed through the treatment facility, and released to South Walnut Creek just downstream of the collection point. The proposed interim action will mitigate downgradient contaminant migration within surface water (and ground water due to the reduction in contaminated surface water percolation), and the interim action will achieve, to the extent practicable, Applicable or Relevant and Appropriate Requirements (ARARs).

Below-ground sumps will be installed at designated collection stations and the collected water transferred to a treatment facility by truck or newly installed pipelines. The use of trucks or pipelines is dependent on the flowrate generated by the collection system with pipelines being reserved for the collection stations generating the higher volumes of water. Water collection by truck from low flow seeps is anticipated to require an average of 50 miles of travel per week by a tank truck.

The collection system and treatment facility are designed to handle base flow rates and not maximum flow events. A "base flow rate" is defined as the maximum observed flow, excluding flows related to high precipitation events. The design flow for the total surface water collection system is 51.5 gallons per minute (GPM). The total average annual flow, of collected water is conservatively estimated to be 20 GPM.

A chemical precipitation with cross-flow membrane filtration system, together with a GAC adsorption system, has been selected as the preferred treatment technology. This will allow for discharge of the treated water in compliance with state and federal water standards. The treated water will be discharged to the South Walnut Creek drainage, immediately downstream of the contaminated surface water collection point. Treated water will be monitored to ensure contaminants are within regulatory guidelines. The secondary wastes from

water treatment will be handled as a hazardous mixed waste until otherwise determined, and the wastes treated or disposed of in a manner consistent with current RFP disposal procedures.

Manpower requirements for the proposed operation of the treatment plant are minimal. It is estimated that the treatment plant will require manpower of approximately two (2) hours per shift to monitor operations and perform necessary functions to keep the plant operational. The proposed system offers a high degree of worker protection, by incorporating numerous health and safety design considerations (trailer venting, alarm/emergency shutdown systems, automated clean-in-place equipment, etc.). Worker training will further minimize potential accidents and potential adverse health effects.

Although the IM/IRAP demonstrates that the risks associated with the proposed operation of a surface water collection and treatment system are low, DOE is continuing to evaluate alternative treatment technologies. Treatability studies will be conducted prior to the start of the interim remedial action to confirm the selection of the preferred treatment system or to select a more viable alternative.

ALTERNATIVES CONSIDERED: Alternatives to the proposed action that were discussed in the EA portion of the IM/IRAP include the no-action alternative, other treatment technologies for suspended solids removal; and other treatment technologies for radionuclide and organic constituent removal.

Under the no-action alternative, contaminated surface water would not be collected. Contaminated water would continue flowing downstream to the existing retention ponds where it is treated to meet the NPDES permit. The no-action alternative may pose a long-term release risk to the general public, and may require an increase in the scope of remedial actions in the future.

Alternative treatment technologies were evaluated based on effectiveness, implementability and costs. Chemical precipitation with cross-flow membrane filtration and granular media filtration were evaluated for suspended solids removal. Cross-flow membrane filtration and ion exchange were evaluated for radionuclides and metals removal. Activated carbon adsorption, ultraviolet (UV)/peroxide oxidation, and air stripping with off-

gas treatment were evaluated for organic contaminant removal. The selected treatment system utilizing the chemical precipitation with cross-flow membrane filtration system and the activated carbon system is the logical choice based on available surface water quality data, literature information on expected performance, and best engineering judgment.

ENVIRONMENTAL CONSIDERATIONS: The EA portion of the IM/IRAP for surface water has evaluated the environmental impacts to air quality, water quality, terrestrial features (including wildlife and wetlands), archaeology and historic sites, and short- and long-term land productivity from the proposed preferred alternative.

Air quality impacts are considered overall to be minimal. Construction activities will require leveling a pad area, installation of sumps, and installation of pipelines for the proposed surface water treatment facility. Although some dust will be generated as a result of construction and operational activities, these dusts will be controlled as specified in the Environmental Restoration's Health and Safety Program Plan (ERHSPP) and the draft Plan for Prevention of Contaminant Dispersion (PPCD). Dermal exposure, inhalation, and inadvertent ingestion of airborne radioactivity and VOCs on fugitive dusts are minimal.

The impact to water quality arising from the proposed interim action will improve the surface water quality at the RFP site. Surface water flows exceeding the design capacities of the system may create some sediment transport by surface runoff ending in open waters on site.

Terrestrial impacts to animal life, plant life, and land forms (including wetlands) are expected to be minimal relative to the disturbance to the areas of concern created by the Plant's construction and operation during the past 37 years. No animals on site are classified as rare or endangered.

Similarly, based on the disturbance of the area and the topographic position of the plant facilities, the proposed action should not impact cultural resources relative to potential archaeological and historical sites at the RFP site. This has been determined by the State Office of Archaeology and Historical Preservation.

The short- and long-term land productivity will not be impacted by the proposed IM/IRA. Land within OU 2 is currently undeveloped and will remain so for the foreseeable future as part of the RFP. OU 2 lies within the RFP security boundaries and is not accessible to the general public.

ROUTINE OPERATIONS: Analyses were conducted to assess worker and public exposures to radiation and hazardous chemicals during construction, routine operations and potential accidents. Routine operation of the treatment system is expected to result in minimal exposure to site workers or the general public.

ACCIDENT SCENARIOS: General accidents were analyzed to estimate potential radiological and hazardous chemical exposure to workers or members of the public. These included fires or spills of contaminated water. Spills of untreated water within the treatment facility would create the potential for short duration airborne VOCs. Uptake of contaminants by workers involved in the cleanup would be minimized by following safety precautions specified in the Site-Specific Health and Safety Plan (SSHSP). Any airborne VOC releases through ventilation systems that could lead to exposures of other RFP employees (site employees) or the general public would be less than the tank rupture scenario.

The initiation and propagation of a fire within the treatment facility is a credible accident and the facility trailers are equipped with chemical fire extinguishers. The generated solids are inorganic and in a sludge form containing 60 to 70 percent water and are within metal containers. A fire would have to both dry out and aerosolize the solids as well as breach the metal containment to result in a radioactive release. It is believed that a fire duration and intensity would be insufficient to result in a radioactive material release.

Based on the maximum amount of contaminants potentially available for release and the dispersible form of the contaminants, the most severe credible accident with potential for the exposure of either site employees or the public would be airborne VOCs released with the rupture of the 5,000-gallon water collection tank. The concentration of VOCs contained in the collection tank should be low. Transfer of contaminated water or filter press solids (sludge) by truck will not pose as great an accident concern because of the lower volume that could potentially be released. Furthermore, these transportation activities would occur exclusively on-site, in

accordance with the On-Site Transportation Manual, and will not involve any public roads. Consequently, transportation speeds and distances will be low, minimizing the likelihood of severe accidents and any attendant contaminant releases. The risk of such accidents and potential radiological and hazardous chemical exposure to workers or members of the public is considered minimal.

RISKS FROM ABNORMAL EVENTS: The potential risk of accidents that may occur during the construction phase of the proposed action are those typical of small excavation or construction projects. No credible accident during construction would lead to exposure of the public to levels greater than those resulting from the accident scenario discussed above.

DETERMINATION: Based on the information and analyses in the EA section of the IM/IRA, DOE believes that the proposed action does not constitute a major federal action significantly affecting the quality of the human environment, within the meaning of NEPA. Therefore, DOE has determined that preparation of an Environmental Impact Statement (EIS) is not required.

Issued at Washington, D.C., this _____ day of December 1990.

Attachment-Summary of Comments Received on the Proposed FONSI

Nine organizations and individuals submitted comment letters on the proposed FONSI and the supporting Surface Water Interim Measure/Interim Remedial Action Plan and Decision Document for the 903 Pad, Mound and East Trenches Areas (Operable Unit No. 2) during the public review and comment period from September 26, to November 24, 1990. All of the comments and the respective responses are published in the "Public Comment Responsiveness Summary on the Proposed Surface Water Interim Measure/Interim Remedial Action and Decision Document for the 903 Pad, Mound and East Trenches Area (Operable Unit No. 2)", December 1990. The following summary describes the significant comments and DOE's responses. Readers interested in specific comments or DOE's detailed responses should refer to the Responsiveness Summary.

Totally, 173 comments were received on the proposed Interim Remedial Action. These comments have been grouped into nine categories of major issues and concerns. Following is a summary of the comments and the responses for each respective category. The complete comments and respective responses are contained in the "Public Comment Responsiveness Summary on the Proposed Surface Water Interim Measure/Interim Remedial Action" document.

1.0 GENERATION OF PLUTONIUM CONTAMINATED DUST AND PERSONAL HEALTH AND SAFETY (25 COMMENTS)

Comment: Comments sought information on the plutonium contaminated dust that may be generated as a result of the proposed interim remedial action and how the DOE proposed to protect worker health and safety as well as the health and safety of the general public.

Response: The DOE recognizes that the control of plutonium contaminated dust is of major concern to the health and safety of Rocky Flats personnel as well as the general public. Three specific health and safety plans are involved in the development of procedures to protect the health and safety of site workers and the general public. These plans include the Site-Specific Health and Safety Plan (SSHSP) providing procedures to control, assess, and mitigate plutonium contaminated dust problems related to the proposed interim remedial action. This plan is specifically prepared for site-specific activities and is completed after the design phase of the project is completed. The plan is based in part on guidance based in the ER Health and Safety Program Plan (ERHSPP) and the Plan for Prevention of Contaminant Dispersion (PPCD). Dust mitigation procedures will be developed for specific IM/IRA construction and operation activities based on guidance provided in the PPCD.

2.0 INTERBASIN WATER TRANSFER (Three comments)

Comment: Comments were received on the Interim Measure/Interim Remedial Action proposal to remove a potentially contaminated surface water from Woman Creek, ship by truck the untreated water to a waste water treatment plant on-site, process the water through the treatment plant, and discharge the treated water to South Walnut Creek.

Response: The response explains that regardless of the estimated low risk to the public from the construction and water transport activities, due to the popular sentiment of the public and municipal concerns, the DOE proposes to modify the IM/IRA plan of September 20, 1990, so that Woman Creek seepage will not be transferred to South Wainut Creek. DOE also proposes to postpone the collection of Woman Creek seeps until bench scale treatability tests have been completed.

3.0 SELECTION AND ATTAINMENT OF APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS). (25 COMMENTS)

Comment: Many commentors expressed concern about the proposed IM/IRA's ability to meet ARARs, the NCP requirement, and any other regulations in that the interim measure must attain ARARs only to the extent practicable.

Response: The DOE's response explains that it is their full intention to comply with EPA policy and regulations for Superfund remedial actions and that the proposed action will meet RCRA Subpart F requirements by establishing a remediation level that is equivalent of a health-based ACL. The EPA and the Colorado Department of Health (CDH) will determine if a waiver of any ARAR due to the exigencies of the interim response is justified and not the DOE.

4.0 TREATABILITY STUDIES. (FIVE COMMENTS)

Comment: General comments were registered regarding the completeness of testing (Bench Scale and Pilot Plant) of the proposed waste water treatment system to ensure that the selected system has been adequately tested for its ability to remove the chemical constituents of concern and that any hazardous or radioactive wastes generated during this testing process has been adequately addressed.

Response: The Responsiveness Summary explains that the DOE will conduct bench scale treatability studies of the Woman Creek seeps prior to the selection of a treatment system for the Woman Creek contaminants. This effort has been postponed until March 1991 due to the seeps being dry at the current time. By allowing adequate time for testing, data interpretation and preparation of reports, an addendum to the IM/IRA Plan can be completed during the summer of 1991.

5.0 MONITORING (EIGHT COMMENTS)

Comment: Commentors raised concerns about the level of monitoring in place for the effluent of the proposed waste water treatment plant and the system available to ensure that the treatment plant would not be discharging partially contaminated water to South Walnut Creek.

Response: The DOE's response in the Responsiveness Summary states that technology to monitor the contaminant concentrations of the processed surface water as it leaves the treatment plant is not commercially available at this time. However, process variables such as flow, pH, chemical additions ratio, etc. will be monitored and controlled on a real-time basis to assure protection of the treatment units and to produce a final effluent that meets or exceeds the treatment requirements.

6.0 IM/IRA SYSTEM OPERATION/PERFORMANCE (13 COMMENTS)

Comment: Commentors expressed interest in further understanding the mechanics and operations of the proposed treatment system to adequately remove the contaminants identified and the ability of the system to function as designed.

Response: The DOE's response in the Responsiveness Summary is to provide the additional information requested where practicable to resolve the concerns of the commentor. Where a misunderstanding exists by the commentor as to the treatment process, a commitment has been made be the DOE to clarify the language in the IM/IRA Plan. System operations/performance questions relating to the treatment of seep water from Woman Creek have been deferred until seep water samples can be collected and properly evaluated.

7.0 ZERO DISCHARGE CONCEPT (NINE COMMENTS)

Comment: Several commentors advanced the idea of zero discharge of water from the Rocky Flats to insure that no waterborne contaminants are carried off sight that might contain chemicals or radionuclides generated as a result of Rocky Flats Plant activities.

Response: DOE is aggressively studying measures to achieve the goal of zero discharge. For example, DOE is engaged in planning an interim project to recycle water from Pond C-2 into the plant's industrial water loop, for use in cooling towers and boilers. Funding has been secured for this project and it is hoped that construction can be completed soon. Unfortunately for the OU 2 Surface Water IM/IRA, the schedule does not allow for the water resource planning, or design and construction of a water reuse conveyance system. Reuse of treated effluent will be evaluated for future final remedial actions.

8.0 COMMUNITY RELATIONS (AND DOCUMENT AVAILABILITY). (12 COMMENTS)

Comment: A number of comrnents were received requesting work study or working sessions relating to the proposed IM/IRA plan. Also, requests were made for availability of more documents at a lesser price.

Response: The DOE agrees that workshops can be of value and will consider holding workshops for future public comment topics if time permits and the public is interested. A workshop was not scheduled for the Surface Water IM/IRA Plan for OU 2 because members of the public recently expressed dissatisfaction about the high frequency of public meetings on Rocky Flats issues. The DOE did provide presentations and answered questions about the Surface Water IM/IRA Plan for OU 2 at regularly scheduled meetings of the Rocky Flats Environmental Monitoring Council and the area municipalities. The DOE agrees that public documents should be available to all interested parties, and to the extent possible, the DOE provides individual with requested documents. Due to the escalating cost for providing these documents, the DOE is making these documents available to the public through four public reading rooms and by encouraging those groups that are able to obtain project documents to share them with the rest of the interested public.

9.0 TANK TRUCK TRANSPORT OF SURFACE WATER. (SIX COMMENTS)

Comment: Several commentors requested that alternative transportation methods be developed for the transport of surface water from the seeps associated with Woman Creek. The use of public roads (Indiana Street) was not acceptable based on several comments as a means of transport.

Response: Because of the concerns registered regarding the transportation on public roads and the opposition to interbasin water transport,the DOE has decided to postpone the collection and treatment of seeps in the

Woman Creek drainage until bench scale testing can be completed on newly collected water samples from these seeps. An addendum to the Surface Water IM/IRA can be completed during the summer of 1991.

The remaining comments are too diverse to categorize into major categories, but these comments have been addressed and the respective responses are contained in the "Public Comment Responsive Summary on the Proposed Surface Water Interim Measure/Interim Remedial Action" document.

In light of the comments received from the public and municipalities on the proposed Surface Water IM/IRA, the DOE proposes to modify the IM/IRA of 26 September 1990 to eliminate interbasin transfer of Women Creek seepage to South Walnut Creek. DOE proposes to postpone the collection of Woman Creek seeps until bench scale treatability tests have been completed. These tests have been delayed because the seeps have been dry and no sample has been available for testing. It is expected that seep water will be available in March 1991. By allowing adequate time for testing, data interpretation and preparation of reports, an addendum to the IM/IRA Plan can be completed during the summer of 1991. The treatment and discharge options to be evaluated and proposed in this addendum will not include interbasin transfer of either treated or untreated water from the Woman Creek drainage.